

Authors

Paul C. Gilmore

B.A. in Mathematics and Physics, University of British Columbia, 1949; M.A. in Mathematics, Cambridge University, 1951; Ph.D. in Mathematics, University of Amsterdam, 1953. National Research Council of Canada Research Fellow, University of Toronto, 1953-55; Assistant Professor of Mathematics, The Pennsylvania State University, 1955-58. Joined IBM Information Research Department, Yorktown Heights Research Center, in July 1958. In addition to work on theorem proving, he has continued research in the foundations of set theory. At present is studying the possibility of using certain formal languages as programming languages and of using theorem-proving programs to assist in programming in such languages. Member of American Mathematical Society, Canadian Mathematical Congress, The Association for Symbolic Logic, The Association of Computing Machinery, Sigma Xi and Research Society of America.

Robert E. Jones, Jr.

A.B. in Chemistry, Columbia University, 1953; Ph.D. in Physical Chemistry, University of California, 1957. Worked at the University of California Radiation Laboratory, 1956-1957. Joined IBM in 1957 and is engaged in cryogenics research at the Research Laboratory in Poughkeepsie.

Constantine M. Melas

B.S., Massachusetts Institute of Technology, 1951; M.S., University of California, Los Angeles, 1954. Joined the IBM San Jose Research Laboratory in 1958; is presently in the Advanced Systems Development Division, where he is engaged in data transmission research. Mr. Melas is a member of the IRE.

Willard L. Miranker

B.A., Mathematics, 1952, M.S., Mathematics, 1953, and Ph.D., Mathematics, 1957, New York University. In 1952 he was Teaching Fellow at Cornell University; Research Assistant, Institute of Mathematical Sciences, NYU, 1955-56; Member of Technical Staff, Bell Telephone Laboratories, 1957-58. Joined IBM as Staff Mathematician at the Yorktown Heights Research Center in 1959. Is a member of the American Mathematical Society, Phi Beta Kappa, Pi Mu Epsilon, Mu Chi Sigma and Sigma Pi Sigma.

John E. MacDonald, Jr.

B.S.E.E. with distinction, Purdue University, 1948; M.E.E., Syracuse University, 1958. Was associated with Carter Oil Co. Geophysical Research Laboratory, 1948-50; Ballistic Research Laboratories, Aberdeen Proving Grounds, 1950-52. Joined IBM in 1952 and worked on IBM 607 computer. From 1953 to 1956 was responsible for central computer logical design and system test of Sage I Air Defense Computer. Joined Information Research Department in 1956 to do research in error-correction coding and logical redundancy. From 1957 to present has done development work in the same field in the Exploratory Reliability Department of IBM Poughkeepsie Product Development Laboratory, Data Systems Division. Is member of Eta Kappa Nu, Tau Beta Pi, and Pi Mu Epsilon.

Hao Wang

B.S., National University, Kunming, China, 1943; Ph.D., Harvard University, 1948; Junior Fellow, Society of Fellows, Harvard University, 1948-51; Assistant Professor, Harvard University, 1951-53, 55-56; research engineer, Burroughs Corporation, 1953-54; John Locke Lecturer, Oxford University, 1954-55; Fellow, Rockefeller Foundation, 1954-55. Has been Reader in the Philosophy of Mathematics, University of Oxford, since 1956. Has been associated with University of Michigan and the IBM Poughkeepsie Research Laboratory in the summers of 1956-58. Is on leave for one year from University of Oxford as a Member of the Technical Staff at the Department of Mathematical Research of the Bell Laboratories in Murray Hill, N. J. Is a member of American Academy of Arts and Sciences, and of the Association for Symbolic Logic. His field of work has included mathematical logic, philosophy of mathematics, and computing machines.

Satosi Watanabe

Dr. Sc., University of Paris, 1935. Professor of Physics at U. S. Naval Postgraduate School at Monterey, California, 1952-56. Joined IBM in 1956 at the Poughkeepsie Research Center, where he worked primarily on information theory. Is presently associated with the Lexical Processing Research Department at the Yorktown Heights Research Center. During this academic year he is teaching a course in information theory at Yale University Graduate School. Is Fellow of the American Physical Society and member of Sigma Xi.

Contents of Previous Four Issues

January 1959

Vol. 3, No. 1

● Articles

- Automatic Failure Recovery in a Digital Data Processing System
by *R. H. Doyle, R. A. Meyer and R. P. Pedowitz* . . . 2-12
- Diffusion Attenuation, Part I
by *J. A. Swanson* 13-17
- Diffusion Attenuation, Part II
by *J. A. Swanson and K. Y. Sih* 18-24
- On the Mathematical Theory of Error-Correcting Codes
by *H. S. Shapiro and D. L. Slotnick* 25-34
- The Thermal Equivalent Circuit of a Transistor
by *P. R. Strickland* 34-45
- The Multipurpose Bias Device—Part II: The Efficiency of Logical Elements
by *B. Dunham, D. Middleton, J. H. North, J. A. Sliter and J. W. Weltzien* 46-53
- An Analysis of Adequate Inventory Levels
by *J. J. Sopka* 54-57
- Two-Parameter Lifetime Distributions for Reliability Studies of Renewal Processes
by *B. J. Flehinger and P. A. Lewis* 58-73
- An Experimental Modulation-Demodulation Scheme for High-Speed Data Transmission
by *E. Hopner* 74-84

● Short Communications

- Application of Phase-Contrast Metallography in a Production Laboratory
by *G. Koves* 85-92
- Observations of Rotational Switching in Ferrites
by *W. L. Shevel, Jr.* 93-95

April 1959

Vol. 3, No. 2

● Articles

- Direct Measurement of the Angular Dependence of the Imaginary Part of the Atomic Scattering Factor of Germanium
by *L. P. Hunter* 106-113
- Finite Automata and Their Decision Problems
by *M. O. Rabin and D. Scott* 114-125
- Interatomic-Force Constants from a Central-Force Law
by *H. Cole* 126-131
- On the Transition from Superconducting to Normal Phase, Accounting for Latent Heat and Eddy Currents
by *A. J. W. Duijvestijn* 132-139
- Geometric Effects in the Superconducting Transition of Thin Films
by *M. D. Reeber* 140-146
- Computation of $\sin N$, $\cos N$ and $\sqrt[m]{N}$ Using an Electronic Computer
by *E. G. Kogbellantz* 147-152
- Microwave Resonance in Gadolinium-Iron Garnet Crystals
by *W. V. Smith, J. Overmeyer and B. A. Calhoun* 153-162
- On Codes for Checking Logical Operations
by *W. W. Peterson and M. O. Rabin* 163-168
- Extension of Moore-Shannon Model for Relay Circuits
by *M. Kochen* 169-186

● Short Communications

- Numerical Solution of Laplace's Equation, Given Cauchy Conditions
by *I. Sugai* 187-188
- A Cryogenic Oscillator
by *G. B. Rosenberger* 189-190
- Noise Theory for Hot Electrons
by *P. J. Price* 191-193
- Doubling the Efficiency of the Load-Sharing Matrix Switch
by *M. P. Marcus* 194-196
- Elementary Divisors of Normal Matrices
by *P. Erdős* 197
- The Reduction of Two-Way Automata to One-Way Automata
by *J. C. Shepherdson* 198-200